PROPOSED PLAN
For Remedial Action at Anomaly Area 3
FORMER MARINE CORPS AIR STATION EL TORO

Final – August 2009

Navy Proposes Final Remedy for Anomaly Area 3

The U.S. Navy invites the public to comment on the ***Proposed Plan**** for cleanup of Anomaly Area 3 (AA 3) at former Marine Corps Air Station (MCAS) El Toro, Irvine, California. The U.S. Environmental Protection Agency, Region 9 (U.S. EPA), the California EPA Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board, Santa Ana Region (RWQCB) worked with the Navy in the evaluation of alternatives including the ***preferred alternative***.

Preferred Alternative

This Proposed Plan for AA 3 presents Alternative 2 as the Navy's preferred choice of remedial alternatives which includes:

(1) limited grading of the existing cover, constructing a finger dike, and placing riprap to prevent erosion of the cover and to control storm water in the vicinity of Agua Chinon Wash;

(2) ***institutional controls (ICs)*** in the form of land-use restrictions to limit access or activities at the site to protect public health and the environment;

(3) a passive/active ***landfill gas (LFG)*** venting and monitoring system which would be activated as necessary to minimize or control potential LFG migration within the 100-foot buffer zone surrounding the landfill; and

(4) long-term environmental monitoring for approximately 30 years to ensure that waste materials (primarily construction debris) do not impact groundwater or release unacceptable levels of LFG beyond the 100-foot protective buffer zone surrounding the landfill.

Cleanup of groundwater at AA 3 is not required although groundwater monitoring is included as a component of the preferred remedy.

Proposed Plan Content

This Proposed Plan summarizes the regulatory process that governs the response action selection; describes the site history, environmental investigations, risk assessments, and remedial alternatives for AA 3; and describes the basis for choosing the preferred alternative. The Navy will consider public comments on this Proposed Plan during preparation of the ***Record of Decision (ROD)*** for AA 3. The Navy invites you to provide comments on the Proposed Plan; see Page 10 for information on how to submit your comments.

Regulatory Framework

Since the late 1980s, numerous investigations have been conducted at former MCAS El Toro under the Navy's ***Installation Restoration Program (IRP)***, which is a comprehensive environmental program that identifies, investigates, and remediates releases of chemicals in soil and groundwater that resulted from past activities. The IRP complies with the ***Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA);*** the Resource Conservation and Recovery Act (RCRA); the California Hazardous Substances Account Act; and all other federal and state laws that govern environmental cleanups.

MCAS El Toro was listed on the National Priorities List in 1990. The Navy, on behalf of the Marine Corps, entered into a Federal Facility Agreement (FFA) with U.S. EPA, DTSC, and RWQCB in 1990. The MCAS El Toro Base Realignment and Closure (BRAC) Cleanup Team (BCT) was established in 1993; it is composed of representatives of the Navy, U.S. EPA, DTSC, and RWQCB. The BCT has carefully evaluated environmental data, technical information, and response alternatives for AA 3 and concurs with the Navy's recommendation of the preferred remedy.

Words in **bold, italic type are defined in the glossary of acronyms and technical terms on Page 12.*

30-Day Public Comment Period — August 12– September 12, 2009
Public Meeting — August 19, 2009 at 6:30 p.m.

Irvine City Hall, One Civic Center Plaza
Harvard at Alton Parkway, Irvine, California

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of CERCLA and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Proposed Plan summarizes information detailed in documents contained in the ***Administrative Record (AR)*** File for this site. The Navy encourages the public to review these documents to gain an understanding of the environmental investigations and assessments that have been conducted. Documents are available for public review at the locations listed on Page 11.

Background and Overview

This section of the Proposed Plan presents a description of the site, an overview of major milestones, and an update on the current status of AA 3. Key documents including the ***Remedial Investigation (RI)/Feasibility Study (FS)*** Report and the Radiological Release Report discussed below are available for review by the public (see Page 11).

Site Description

AA 3 encompasses an area of approximately 5.1 acres and is located in the northeastern section of the former MCAS El Toro facility near Pusan Way, and adjacent to Agua Chinon Wash (see Figure 1). Historically, AA 3 was used as a source of borrow material (i.e. clean fill soil). The borrow pits and trenches were backfilled with construction debris and later covered with fill soil. There is an average of approximately 4.5 feet of soil cover across the site with isolated areas having 2 feet of cover. Based on a review of aerial photographs and topographic maps, construction debris was placed at the site between 1972 and 1988.

Remedial Investigation and Feasibility Study

The 2008 RI/FS Report presents results of the remedial investigation conducted to characterize environmental conditions at AA 3 and to estimate potential risks to human health and the environment at the site. The report also presents the FS, which evaluates alternatives for cleanup.

The RI component involved extensive analysis of air, soil gas, soil, surface water, and groundwater at the site. This information was used in the FS, which was conducted in accordance with the U.S. EPA's presumptive remedy approach for landfills used throughout the country. See the box to the right for more information on the presumptive remedy approach.

Results from air sampling showed that ***volatile organic compounds (VOCs)*** and LFGs are present at low concentrations. Soil gas sampling results indicated that methane is present at elevated concentrations in the central portion of the site. Methane is a common breakdown product of buried organic material in landfills. However, results from air and soil gas sampling confirmed that controls are not presently needed to contain LFGs due to their low concentrations.

Results from surface water samples indicated that only two ***metals***, aluminum and chromium, were reported at concentrations exceeding screening values published by the regulatory agencies. However, the upstream and downstream concentrations of these metals were similar, indicating that AA 3 does not impact surface water in the Agua Chinon Wash.

Results from shallow soil indicated the presence of ***semivolatile organic compounds (SVOCs)***, ***petroleum hydrocarbons,*** and metals. Results from groundwater indicated very low concentrations of VOCs, SVOCs, petroleum hydrocarbons, and metals.

Human health and ecological risk assessments were then conducted during the RI using these sampling results to evaluate risk from potential exposure to the chemicals in soil gas, shallow soil, and in groundwater at the site. The risk assessments accounted for human exposure conditions under site visitor; construction, agricultural and industrial worker; park user; and residential scenarios, the most conservative exposure. Details of the risk assessment process and results for AA 3 are presented on pages 3 and 4.

Remedial action objectives (RAOs) were established in the FS to focus the development, evaluation, and comparative analysis of remedial alternatives. In general, the RAOs for AA 3 called for minimizing contact with the wastes at the site, preventing erosion of the existing soil cover, and minimizing ponding and infiltration of surface water.

Remedial alternatives were developed and evaluated in the FS, to protect human health and the environment from potential LFG in the central portion of the site, and from SVOCs, petroleum hydrocarbons and metals in the shallow soil. Nine criteria specified in and required by the federal NCP were used to evaluate the remedial alternatives.

U.S. EPA's Presumptive Remedy for Landfills

U.S. EPA's presumptive remedy approach, used at other landfill sites throughout the country, guided the FS process and evaluation of cleanup alternatives for AA 3. The presumptive remedy includes components such as capping, institutional controls (deed and access restrictions), and long-term monitoring. These remedies/components were assembled in different combinations to create the remedial alternatives.

Presumptive remedies can be cleanup technologies, control technologies, or institutional controls that have proven to be most effective for typical landfills. The presumptive remedy approach is also used to help guide the process of identifying a proven method for landfill closure that protects both human health and the environment.

A description of the criteria and results from this evaluation are presented on pages 5 to 7.

Radiological Investigation

A station-wide historical radiological assessment was conducted in 2000 to identify potential, likely, or known radioactive source materials or contamination throughout the Station. ***Radium-226 (Ra-226)***, a radioactive metallic element, was identified as a chemical of potential concern for MCAS El Toro due to its use as a component in luminescent paint in dials, gauges, and other equipment in aircraft at the Station. The surface area at AA 3 was recommended for further investigation, including radiological scan surveys and soil sampling. Based on results from site-specific surveys, soil sampling, statistical tests, and risk calculations, it was concluded that the surface of AA 3 contains only natural radioactivity (e.g. in gravel, crushed rock, etc.), and the level of exposure to Ra-226 for a residential receptor at AA 3 is within background. AA 3 was therefore considered to meet the radiological criteria for unrestricted use. The California Department of Health Services, now referred to as the Department of Public Health, concurred with these conclusions and stated that historical documentation indicated that the site could be reclassified as non-impacted and therefore was acceptable for unrestricted radiological release.

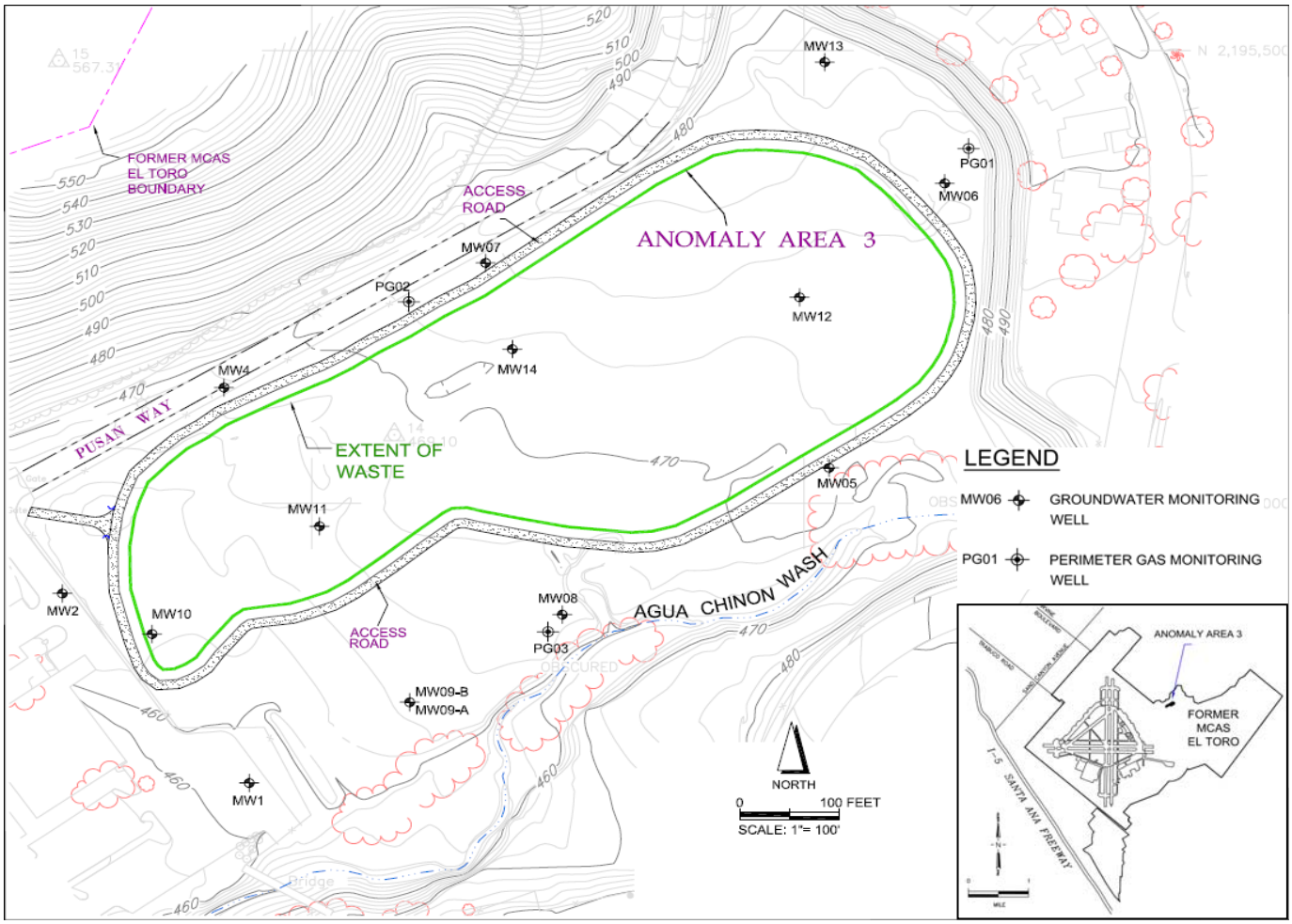

Figure 1: Anomaly Area 3 Site Layout

Human Health and Ecological Risk Assessments

"Risk" is the likelihood or probability that a hazardous chemical, when released to the environment, will cause adverse effects on exposed humans or other ecological receptors. A human health risk assessment was conducted for AA 3 as part of the RI in accordance with federal and state guidelines. An ecological risk assessment was also conducted to evaluate potential effects on plants and animals from exposure to chemicals at the site.

Human Health Risk Assessment

The Navy considered different ways that people might be exposed to chemicals, the possible concentrations of chemicals that could be encountered during exposures, and the potential frequencies and durations of exposures, based on various potential future uses. The Navy evaluated risks for several potential reuse scenarios: visitors to the site,

construction workers, agricultural and industrial workers, park users, and residents (the most conservative scenario).

Risk calculations were based on "conservative" assumptions, which means that the assumptions tend to overestimate risk, resulting in cleanup goals that are more protective of human health. The residential scenario is considered the most conservative as it assumes that shallow groundwater from the site would be used for domestic purposes like drinking and bathing over a period of 30 years.

Human health risk is classified both as cancer (from exposure to carcinogens) and noncancer (from exposure to noncarcinogens). Cancer risk is generally expressed as a probability. For example, a cancer risk probability of 5-in-100,000 indicates that, out of 100,000 people exposed, 5 additional cancer cases may occur in the people exposed. To help characterize cancer risk, U.S. EPA's established risk management range (1-in-10,000 to 1-in-1,000,000) is often used by risk managers to evaluate whether site risks are significant enough to warrant ***remedial action***. According to the U.S. EPA, cleanup is generally warranted for sites where the cumulative risk for future and current land-use exceeds 1-in-10,000 and action may be considered for risks in the 1-in-10,000 to 1-in-1,000,000 range.

Noncancer risk is expressed as a number called a ***hazard index (HI),*** which is estimated by comparing chemical exposure levels with established reference values. An HI of 1 or less is considered an acceptable exposure level for noncancer health hazards.

Results from the risk assessments indicate potential risks to human health and the environment would continue to be present if actions are not taken at AA 3 to prevent exposures to wastes or to control infiltration. The human health cancer risk estimates for soil are all within or below U.S. EPA's risk management range and non-cancer HIs are all less than or equal to 1, which means that the risk to human health and the environment at AA 3 can be managed by engineering or other controls.

Risk estimates for exposure to soil:

- The estimated risk for potential residential exposure to surface and subsurface soil at the site was 4-in-100,000 additional cancer cases. The noncancer HI was equal to 1.
- Risk estimates for other potential exposures range from less than 2-in-1,000,000 additional cancer cases for escorted visitor exposure to surface soil, to a maximum of 3-in-100,000 additional cancer cases for agricultural worker exposure to subsurface soil. Noncancer HIs were below 1 for all exposures.
- The chemicals associated with the majority of the risk are SVOCs.

Risk estimates for exposure to VOCs in indoor air:

- The estimated risk for potential residential exposure to VOCs in indoor air was 1-in-1,000,000 additional cancer cases, and a cumulative noncancer HI of less than 1. Estimated risks for potential industrial exposures were lower.

Risk estimates for exposure to groundwater:

The cancer risk estimate for residential exposure to groundwater at the site (e.g., drinking, bathing, cooking, etc.) was 3-in-10,000 additional cancer cases; arsenic accounted for approximately three-fourths of this potential risk. Arsenic concentrations in groundwater are within the natural background concentrations reported at former MCAS El Toro. The noncancer HI was 7, with antimony, arsenic, chromium, thallium, and vanadium being the primary contributors to the noncancer HI.

Ecological Risk Assessment

Ecological risk assessment results indicated that activities at AA 3 have not had negative effects on ecological receptors (plants and animals) at the site or on aquatic life (plants and fish) in surface water in nearby Agua Chinon Wash.

Remedial Alternatives

The FS component of the RI/FS Report presented the development, evaluation, and comparative analysis of the remedial alternatives to achieve the following RAOs established for AA 3:

- Minimize direct contact with the landfill wastes.
- Control run-on, runoff, and erosion; minimize infiltration and potential contaminant leaching to groundwater.
- Mitigate potential LFG migration consistent with the Navy's agreement with regulatory agencies (see bottom of Page 7 for more information).
- Minimize contact between surface water in Agua Chinon Wash and the waste.

Descriptions of the alternatives developed for AA 3 are presented in the following page, numbered as they appear in the FS Report.

Alternative 1 – No Action

The No Action alternative was evaluated to provide a basis from which to develop and evaluate other remedial alternatives. Under the No Action alternative, cleanup actions would not be implemented, and there would be no change to the existing site conditions.

Alternative 2 — Limited Grading, Monitoring, and Institutional Controls – Preferred Alternative

Alternative 2 consists of limited site grading, minor waste consolidation, construction of a finger dike and placement of riprap, institutional controls, and long-term monitoring. In addition during waste consolidation and site grading, areas with less than four feet of cover will be backfilled and compacted to ensure that there is a minimum of four feet of soil cover. The existing soil cover would prevent infiltration and ***leachate*** formation. The construction activities would minimize erosion of the cover and control stormwater in the vicinity of AA 3. Passive/active LFG venting and monitoring systems would also be installed. Institutional controls would be implemented as detailed on Page 8, and controls such as signs and/or fencing would restrict access to the site and prevent inadvertent contact with wastes. Long-term monitoring would be conducted over a period of 30 years including groundwater and LFG monitoring, land surveys to monitor potential settlement, and inspections and maintenance. Five-year reviews would also be conducted over the 30-year period to evaluate the effectiveness of the remedy.

Alternative 3 – Containment, Monitoring, and Institutional Controls

Alternative 3 consists of an engineered landfill cap in addition to institutional controls and long-term monitoring which are described for Alternative 2. The waste would be consolidated in one area and covered with soil or another type of capping material.

Four types of engineered landfill caps were considered as follows:

- Alternative 3a: Containment with Evapotranspiration (ET) Cover.
- Alternative 3b: Containment with Prescriptive Cap.
- Alternative 3c: Containment with Modified Prescriptive Cap with Geosynthetic Clay Liner.
- Alternative 3d: Containment with Modified Prescriptive Cap with Flexible Membrane Liner.

Alternative 3a involves a single-layer cap (an ET system) which would consist of an approximate 4-foot native soil cover to prevent infiltration and leachate formation, and would be revegetated with annual grasses to minimize erosion. Alternative 3b involves a cover system as defined in Title 27 of the California Code of Regulations (CCR), also called a "prescriptive cap," which would consist of 2 feet of compacted soil, 1 foot of compacted clay to act as a barrier to infiltration, and 2 feet of clean soil on top of the barrier layer to protect the barrier layer, control surface erosion, and allow vegetation growth. Alternative 3c is similar to the prescriptive cap, but would use a manufactured geosynthetic clay liner (GCL), rather than natural clay as an infiltration barrier. Alternative 3d would substitute a flexible membrane liner for the clay cap.

Alternative 4 – Clean Closure and Groundwater Monitoring

Alternative 4, clean closure, includes excavation and removal of all buried construction debris at AA 3. Site contaminants would be removed, thereby removing concentrations posing a risk to human health and the environment. Alternative 4 would also include well abandonment, site revegetation, groundwater monitoring for 5 years, a 5-year site review, and site closeout.

Evaluation of Remedial Alternatives

Each alternative has undergone detailed evaluation and analysis, using the nine evaluation criteria set forth in the NCP, which are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The threshold criteria must be satisfied in order for an alternative to be eligible for selection. The primary balancing criteria are used to weigh major tradeoffs among alternatives. Generally, modifying criteria are taken into account after public comments are received on the Proposed Plan and reviewed with federal and state regulatory agencies to determine if the preferred alternative remains the most appropriate remedy. The nine criteria are defined below and are accompanied by the key points from the evaluation of the four alternatives, including options, with emphasis on Alternative 2, the preferred alternative. Table 1 on Page 7 summarizes the alternative evaluation.

A. Threshold Criteria

1. Overall Protection of Human Health and the Environment — assesses whether a cleanup remedy provides adequate public health protection and tells how health risks posed by the site will be eliminated, reduced, or controlled – Alternative 1 is not considered protective of human health and the environment because infiltration and potential leaching of wastes due to ponding on ungraded portions of the site would not be minimized.

Alternative 2 is considered to be protective of human health and the environment; it includes limited grading to prevent surface water ponding and infiltration; constructing a finger dike and placing riprap to prevent erosion and control stormwater flow in the vicinity of Agua Chinon Wash; institutional controls to prevent contact with wastes; and LFG and groundwater monitoring.

Alternative 3 is considered to be protective of human health and the environment; it includes an engineered landfill cap. Through grading and cap construction, this alternative, including its options, would reduce risks due to potential surface water ponding and infiltration.

For Alternatives 2 and 3, the installation of LFG controls in the form of vertical wells and horizontal trenches prevents potential LFGs from migrating beyond the 100-foot buffer zone.

Alternative 4 is very effective in protecting human health and the environment by removing the wastes from the site, thus reducing contaminant concentrations to levels that eliminate unacceptable risks.

2. Compliance with *Applicable or Relevant and Appropriate Requirements (ARARs)*—addresses whether a cleanup remedy will meet all federal, state, and local environmental statutes or requirements – Alternative 1 would not trigger ARARs. Alternatives 2 and 3 would meet all identified potential ARARs including potential action-specific ARARs related to cover construction and groundwater monitoring, and potential location-specific ARARs. All remedial alternatives except Alternative 1 would comply with state requirements for LFG monitoring and controls in the form of vertical wells and horizontal trenches that would prevent potential LFG from migrating beyond the 100-foot buffer zone. Alternative 4 would comply with the federal requirements for clean closure of the landfill.

B. Primary Balancing Criteria

3. Long-Term Effectiveness and Permanence – refers to the ability of a remedy to protect human health and the environment over time, after the cleanup action is completed – All of the alternatives except Alternative 4 would leave wastes in-place. Alternatives 2 and 3 would cap the wastes and land-use restrictions would minimize the potential for contact with the waste and potential migration of contaminants. Therefore, Alternatives 2 and 3 would be effective in the long-term protection of human health and the environment. Alternative 4 would provide the highest degree of long-term effectiveness because of the complete removal of the waste and waste residuals, including contaminated soils, which would eliminate the need for potential future response actions, inspections, and maintenance.

4. Reduction of Toxicity, Mobility, or Volume – refers to the degree to which a cleanup alternative uses treatment technologies to reduce: 1) harmful effects to human health and the environment (toxicity), 2) the contaminant's ability to move (mobility), and 3) the amount of contamination (volume) – Mobility of contaminants by potential leaching and/or erosion would be prevented by Alternatives 2 and 3. In Alternative 4, reduction of contaminant toxicity would occur through the complete removal of all waste and waste residuals, including contaminated soils; contaminant mobility would also be eliminated. Alternative 1 would not minimize potential leaching of contaminants from the waste. None of the alternatives reduce the volume of waste materials.

5. Short-Term Effectiveness – assesses how well human health and the environment will be protected from impacts due to construction and implementation of a remedy – Alternative 1 poses no additional risks to workers or to the general public under current site conditions because no response actions would be taken. Alternative 2 poses minimal risks to site workers during limited grading, construction, and environmental monitoring activities. Alternative 3 presents more short-term risks than Alternative 2 because it involves extensive cap construction activities. Alternative 4 involves more short-term risk because of the waste excavation and earthwork. Potential risk from exposure of site personnel to dust emissions and direct contact with impacted soil during excavation is high.

6. Implementability – refers to the technical feasibility (how difficult the alternative is to construct and operate) and administrative feasibility (coordination with other agencies). Factors such as availability of materials and services needed are considered – Alternative 1 is the easiest to implement because no actions would be taken. Alternative 2 is readily implementable as it would only involve limited grading and construction activities, institutional controls, access restrictions, and monitoring. Alternative 3 would use proven remedial technologies and commercial services, but would be more complicated to implement than Alternative 2. Implementation of Alternative 4 is complicated and would involve site characterization to assess the extent and characteristics of wastes and any residual contamination at the site. It would require a significant amount of earthwork for removal of waste material.

7. Cost – evaluates the estimated capital costs and present value in today's dollars required for design and construction and long-term operation and maintenance costs – No cost is associated with Alternative 1. The present value costs of the remedial alternatives evaluated for AA 3 range from approximately $3.54 million for Alternative 2 to approximately $37.29 million for Alternative 4 (see Table 1).

C. Modifying Criteria

8. State Acceptance – reflects whether the state of California's environmental agencies agree with, oppose, or have no objection to or comment on the Navy's preferred alternative – State acceptance is evaluated throughout the Proposed Plan process and is documented in the Responsiveness Summary section of the ROD.

9. Community Acceptance – evaluates whether community concerns are addressed by the remedy and if the community has an apparent preference for a remedy. Public comments are an important part of the final decision, however the Navy is compelled by law to balance community concerns with the other criteria – This Proposed Plan is the Navy's invitation to the community to comment on the proposed remedial alternative for AA 3. Community acceptance will be determined after the conclusion of the public comment period and will be documented in the Responsiveness Summary section of the ROD.

Table 1: Comparative Analysis of Alternatives – Anomaly Area 3

U.S. EPA Evaluation Criteria	1. No Action	2. Limited Grading, Monitoring, and ICs	3a. Containment with ET Cover	3b. Containment with Prescriptive Cap	3c. Containment with Geosynthetic Clay Liner	3d. Containment with Flexible Membrane Liner	4. Clean Closure and Groundwater Monitoring
1. Overall Protection of Human Health and the Environment	No	Yes	Yes	Yes	Yes	Yes	Yes
2. Compliance with Applicable or Relevant and Appropriate Requirements	N/A	Yes	Yes	Yes	Yes	Yes	Yes
3. Long-Term Effectiveness and Permanence	○	◑	●	◑	◕	◕	●
4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment	○	◑	◕	◕	◕	◕	●
5. Short-Term Effectiveness	●	●	◕	○	◑	◑	○
6. Implementability[1]	●	●	◕	◔	◕	◕	◕
7. Cost[2]	$0	◕ $3.54	◔ $5.45	◔ $5.66	◑ $5.06	◔ $5.52	○ $25.29 to $37.29
8. State Acceptance	To be determined for all Alternatives						
9. Community Acceptance	Evaluation follows the Proposed Plan public comment period and will be addressed in the Record of Decision						

Relative Performance in Satisfying Criteria

○ **Low** ◔ **Low Moderate** ◑ **Moderate** ◕ **Moderate High** ● **High**

1 Relative performance rating for implementability represents overall rating based on technical and administrative feasibility, and availability of services and materials.

2 Present Value in millions of dollars (for comparison purposes only)

Preferred Remedy - Alternative 2

The preferred remedy for AA 3 is Alternative 2, Limited Grading, Monitoring, and Institutional Controls. The preferred remedy includes institutional controls, monitoring, and maintenance to ensure the integrity of the landfill cover and associated components of the remedy. This remedy also includes passive/active LFG monitoring and venting systems in accordance with the agreement between the Navy and FFA Signatories including the California Integrated Waste Management Board which requires that the Navy install landfill gas control components (e.g. monitoring wells, gravel- filled interception trenches, extraction wells and piping connections). These components will be used to monitor LFG and would be activated as necessary to minimize and control potential LFG migration within the 100-foot buffer zone.

Institutional Controls – AA 3

Institutional controls are legal and administrative measures designed to limit access or activities at a particular site. They may be used as part of a remedy to limit exposure of humans or the environment to contamination that may be present at a site, or to protect a remedy that is in-place.

AA 3 lies in a portion of the Station that has been leased to a private developer. The lease includes interim land-use restrictions as listed below which will remain in effect until the leased property encompassing AA 3 is conveyed by deed to the Lessee. When title to the property is conveyed by the Navy to the private developer, land-use restrictions listed below will be incorporated into the deed and in environmental restriction covenants with DTSC. The ROD will contain a complete list of restrictions.

Interim Land-Use Restrictions The following land uses and activities are prohibited until AA 3 is transferred from the Navy to a new owner:

- Residential use of the site and/or construction of any day care centers.

The following activities are prohibited without prior approval from the Navy:

- Subsurface excavation, digging, drilling, or other disturbance of the ground surface.
- Removal of or damage to security features (e.g., locks on wells), survey monuments, signs, or monitoring equipment and associated pipelines and appurtenances.
- Construction of any structure, including placement of trailers.
- Installation of new groundwater wells of any type and/or use of contaminated groundwater.
- Alteration, disturbance, or removal of any wells, remedial action equipment (e.g., pumps), or associated utilities.

Proposed Final Land Use Restrictions Final land-use restrictions will be incorporated into and implemented through the following two separate legal instruments at the time of conveyance of the property:

a. Restrictive covenants included in one or more "Covenant(s) to Restrict Use of Property" entered into by the Navy and DTSC as provided in the "Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control" and its attached covenant models (Navy and DTSC 2000) and consistent with the substantive provisions of Title 22 of the California Code of Regulations, Section 67391.1.
b. Restrictive covenants included in one or more Quitclaim Deed(s) from the Navy to the property recipient.

The following restricted land-uses must be reviewed and approved by the Navy, other FFA signatories, and the California Integrated Waste Management Board (CIWMB) in accordance with the "Covenant(s) to Restrict Use of the Property," and Quitclaim Deed(s) prior to use of the property for any of the following restricted uses:

- A residence, including any mobile home or factory built housing, constructed or installed for use as a residence for humans,
- A hospital for humans,
- A school for persons under 21 years of age,
- A day care facility for children, or
- Any permanently occupied human habitation including those used for commercial or industrial purposes.

The land-use restrictions would prohibit the following activities in accordance with the "Covenant(s) to Restrict Use of the Property" and Quitclaim Deed(s), unless prior review and written approval is obtained from the FFA signatories and CIWMB:

- Planting deep-rooted plants that have the potential to interfere with the performance of the cap in minimizing infiltration.
- Alteration, disturbance, or removal of any component of a response action, including but not limited to a landfill cap (if constructed), monitoring wells, and survey monuments.
- Removal or damage to security features, including but not limited to fencing and signs.
- Construction of facilities and/or structures, excavation, or any other land-disturbing activity into or on the surface of the landfill that may involve adverse impacts upon the performance of the cap or affect the drainage and/or erosion controls.
- Construction of structures within 100 feet of the landfill, until such time as monitoring demonstrates that LFG is not migrating.

Site Access

- Access provisions would be required to ensure that the Navy and the regulatory agencies have access to remediation equipment and other components for implementing the remedial action, performing maintenance, and conducting monitoring.

Applicable or Relevant and Appropriate Requirements (ARARs)

CERCLA requires that remedial actions meet federal or state (if more stringent) environmental standards, requirements, criteria, or limitations that are determined to be ARARs. Requirements of ARARs are divided into three categories.

- **Chemical-specific** – are health- or risk-based numerical values for various environmental media, specified in federal or state statutes or regulations.
- **Location-specific** – are regulations that may require actions to preserve or protect aspects of environmental or cultural resources that may be threatened by remedial actions to be undertaken at a site.
- **Action-specific** – are regulations that apply to specific activities or technologies used to remediate a site, including design criteria and performance requirements. Potential ARARs are listed below for Alternative 2, the preferred remedy for landfill closure at AA 3 at former MCAS El Toro.

POTENTIAL FEDERAL CHEMICAL-SPECIFIC ARARs

The substantive provisions of the following requirements were identified as potential federal chemical-specific ARARs.

Soil

- Determination of RCRA hazardous waste at CCR Title 22, Sections 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100.
- Definition of Waste at CCR Title 22, Section 66261.2(a), (b)(1), and (c)(1) and (3).

Groundwater

- Point of compliance for groundwater monitoring CCR title 22 Section 66264.95.

POTENTIAL STATE CHEMICAL-SPECIFIC ARARs

Substantive provisions of the following requirements were identified as potential state chemical-specific ARARs.

- Determination of non-RCRA hazardous waste CCR Title 22, Sections 66261.22(a)(3) and (4), 66261.24(a)(2) to (a)(8), 66261.101, 66261.3(a)(2)(C) and (a)(2)(F).

POTENTIAL FEDERAL LOCATION-SPECIFIC ARARs

Substantive provisions of the following requirements were identified as potential federal location-specific ARARs.

- Archaeological survey for construction on previously undisturbed land and the recovery and preservation of archaeological or historical data, if found, Title 16 of the United States Code (USC) Sections 469–469c-1 and Code of Federal Regulations (CFR) Title 40, Section 6.301(c).
- Prohibition of unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public land, Publication L. No. 96-95, 16 USC Section 470aa-470mm.
- Floodplain Management, Executive Order No. 11988, 40 CFR Sections 6.302(b) and 40 CFR pt. 6, app. A, Sections 6(a)(1), (3), and (5) (at the end of Section 6.1.007); CCR Title 22, Section 66264.18(b) and 66264.18(b).

POTENTIAL STATE LOCATION-SPECIFIC ARARs

Substantive provisions of the following requirements were identified as potential state location-specific ARARs.

- Prohibits taking of fully protected mammals, if identified at the site; California Fish and Game Code Section 4700.
- Protection of aquatic habitat and species, California Fish and Game Code Sections 5650(a).

POTENTIAL FEDERAL ACTION-SPECIFIC ARARs

Substantive provisions of the following requirements were identified as potential federal action-specific ARARs.

- Waste generator requirements at CCR Title 22, Sections 66262.10(a) and 66262.11, 66264.13(a) and (b) and 66262.34.
- Landfill closure and post-closure care requirements, CCR Title 22, Sections 66264.111(a) and (b), 66264.309(a), 66264.116, 66264.117(d); and 66264.310 (b)(1), and (b)(5).
- Waste container storage, CCR Title 22, Sections 66264.171, 66264.172, 66264.173, 66264.174, 66264.175(a) and (b), 66264.178.
- Groundwater monitoring program requirements, CCR Title 22, Sections 66264.95(a) and (b), 66264.91(a)(1); 66264.97(b)(1)(A), (b)(1)(B), (b)(4-7),(e)(6), (12)(A), and (B), (13), and (15); and 66264.98(e)(1-5), (i), (j), (k)(1-3), (4)(A), and (D), (7)(C) and (D).
- South Coast Air Quality Management District (SCAQMD) rules pertaining to:
  - Landfill gas control system, Rule 1150.1;
  - Fugitive dust emissions, Rule 403; and
  - Equipment emissions, Rules 404 and 405.

POTENTIAL STATE ACTION-SPECIFIC ARARs

Substantive provisions of the following requirements were identified as potential state action-specific ARARs.

- Landfill requirements at CCR, Division 2, Title 27, including:
  - Postclosure care period, Section 20950(a)(2)(A), 21180(a) and (b).
  - Postclosure land use, Sections 21190(a), (b), (c) and (d).
  - Construction of an engineered alternative to state-prescriptive landfill cap, Sections 20080(b) and (c), and 21090.
  - Landfill gas control, Sections 20921(a)(1), (2), and (3), (b) except procedural requirements, (d), 20923 except procedural requirements, 20925(a), (b), (c), (d)(1), and (3) except procedural requirements, 20932, 20933, 20937 except procedural requirements of 20937(a)(2) (a)(4), (a)(5), and (f)(1) through (3).
  - Security at closed sites, Sections 21135(f), (g).
  - Placement of the final cover and final grading, Section 21140 and 21142.
  - Cover seismic requirements, Section 21145, except procedural requirements of 21145(b).
  - Run-on/runoff and erosion control, Sections 21090(c)(4), and 21150 and 21160(a) and (b) except where the provisions refer to leachate collection and control.
- Institutional controls at California Civil Code Section 1471, California Health and Safety Code (HSC) Section 25202.5, 25222.1 and 25355.5(a)(1)(C), Section 25232(b)(1(A)-(E), 25233(c) and 25234.
- Land-use covenants, CCR Title 22, Section 67391.1.

How Do You Provide Input To The Navy?

Providing Comments on this Proposed Plan

There are two ways to provide comments during the public comment period (August 12, 2009 to September 12, 2009): (1) Offer oral comments during the public meeting, and (2) provide written comments by mail, fax, or email to the Navy no later than September 12, 2009 (see contact information below).

The public meeting will be held on August 19, 2009, at the Irvine City Hall, located at 1 Civic Center Plaza, Irvine, California at 6:30 p.m. Navy representatives will provide information on the environmental investigations and the remedial alternatives at AA 3. You will have an opportunity to formally comment on the remedial alternatives summarized in this Proposed Plan.

Please send all written comments to:

Mr. James Callian, BRAC Environmental Coordinator
7040 Trabuco Road, Irvine, CA 92618-1700
(619) 532-0952 or fax to: (949) 726-6586
james.callian@navy.mil

Restoration Advisory Board

The Navy provides information on the cleanup of AA 3 to the public through public meetings, the AR File for the site, and notices published in the local newspapers. Restoration Advisory Board (RAB) meetings are held quarterly, generally on the third Wednesday of the month, and are open to the public. Please visit the Navy's website for more RAB information: http://www.bracpmo.navy.mil/default.aspx.

Administrative Record File

The collection of reports and historical documents used by the Navy, in conjunction with the regulatory agencies, in the selection of cleanup or remedial alternatives is the AR File. The AR File includes such documents as the final RI/FS Report, radiological assessments, and other supporting documents and data for AA 3. The AR File is located at the following address:

MCAS EL Toro Administrative Record File
Attention: Ms. Sue Rawal
BRAC Office Building, Building 307, MCAS El Toro
Phone: (949) 726-5398

Community members interested in the full technical details beyond the scope of this Proposed Plan can also find key supporting documents that pertain to AA3 and a complete index of all Navy MCAS El Toro documents at the Information Repository (see text box on Page 11).

Where to Get More Information

Mr. Quang Than Remedial Project Manager California Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630 (714) 484-5352 qthan@dtsc.ca.gov	Ms. Christina Fu Public Participation Specialist California Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630 (714) 484-5488 cfu@dtsc.ca.gov	Mr. John Broderick Remedial Project Manager California Regional Water Quality Control Board California Tower 3737 Main Street, Suite 500 Riverside, CA 92501-3339 (951) 782-4494 jbroderick@rb8.swrcb.ca.gov	Ms. Mary T. Aycock Remedial Project Manager U.S. Environmental Protection Agency Superfund (SFD 8-2), Region IX 75 Hawthorne Street San Francisco, CA 94105-3901 (415) 972-3289 Aycock.Mary@epamail.epa.gov

What Happens After the Public Comment Period?

Comments received on this Proposed Plan during the 30-day public comment period (August 12 – September 12, 2009) will be considered in the final remedy selection. The next steps in the IRP process are the ROD and the Remedial Design/Remedial Action.

The ROD will formally document the selection of the final remedy for AA 3. Comments received in writing or verbally provided to the court reporter at the public meeting held on August 19, 2009 will be documented and responded to in the Responsiveness Summary portion of the ROD. The Navy will consider comments received from the public in the final selection of the remedial alternative.

The remedial design involves developing detailed designs and specifications for the selected remedy. The former MCAS El Toro BCT will provide oversight and review of the design. Design documents will be made available for public viewing at the Information Repository and at the on-Station AR File (see below). Remedial action refers to implementation of the selected remedy and also requires cooperation and oversight of the BCT.

Multi-Agency Team Concurs with AA 3 Preferred Remedy

The BCT, composed of representatives from the Navy, the U.S. EPA, DTSC, and Water Board, was established when MCAS El Toro was designated for closure. The primary goals of the BCT are to protect human health and the environment and oversee the environmental cleanup at the Station.

The BCT plays a key role in the coordination and review of the environmental investigations and cleanup and was involved in the review of all major documents and activities associated with AA 3. This review included the RI/FS for AA 3, which included: 1) RI Report with detailed human-health risk assessments, and 2) FS Report which evaluated the effectiveness of the remedial alternatives for AA 3 and showed how these alternatives meet the U.S. EPA evaluation criteria (see Pages 5 to 7).

Based on these reviews and discussions on these key documents and activities, the BCT concurs with the Navy's recommendation of Alternative 2, Limited Grading, Monitoring, and Institutional Controls, as the preferred remedy for AA 3.

Information Repository Location

Community members can find key support documents that pertain to AA 3, and a complete index of all MCAS El Toro AR File documents, at the Information Repository located at the Heritage Park Regional Library, 14631 Yale Avenue, Irvine, California 92714. The telephone number is (949) 936-4060.

Administrative Record File Location

The complete AR File of documents for all of Former MCAS El Toro, including site-specific files for AA 3, is available for review at Former MCAS El Toro, Building 307. To schedule a review time at the Station during the public comment period, contact Ms. Sue Rawal at (949) 726-5398.

MAILING LIST COUPON

If you would like to be on the mailing list to receive information about environmental activities at Former MCAS El Toro, please fill out the coupon below and send it to Ms. Randa Chichakli, CDM, 9444 Farnham Street, Suite 210, San Diego, CA 92123. If you prefer, e-mail the information requested below to ChichakliRE@cdm.com.

☐ Add me to the Former MCAS El Toro Installation Restoration Program mailing list.

☐ Send me information on Restoration Advisory Board membership.

Name _____ Affiliation (optional) _____

Street _____

City _____ State _____ Zip Code _____

Telephone _____

HELP US STOP WASTEFUL DUPLICATE MAILINGS

If you receive duplicates of this mailing, please send us the labels. Be sure to include which is the correct label and we'll update our records. Thank you for your time and cooperation.

Glossary of Acronyms and Technical Terms

Administrative Record (AR) File: A collection of reports and historical documents used in the selection of cleanup or environmental management activities.

Applicable or relevant and appropriate requirements (ARARs) are the federal and State laws and regulations that must be followed for the selected cleanup remedy.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, is a federal law that regulates environmental investigation and cleanup of sites identified as potentially posing a risk to human health or the environment.

Feasibility Study (FS) is a study that identifies and evaluates cleanup technologies for a site based on effectiveness, availability, cost, and other criteria.

Hazard index (HI) is a calculated value that represents a potential noncancer health effect. An HI value of 1.0 or less is considered protective of human health.

Installation Restoration Program (IRP) is the Department of Defense's program to investigate and clean up environmental contamination at military facilities in full compliance with CERCLA.

Institutional controls (ICs) are non-engineering mechanisms established to limit human exposure to contaminated soil, sediment, and/or groundwater.

Landfill gas (LFG) consists of methane and/or other gases generated by the decomposition of organic matter from wastes placed in landfills.

Leachate is formed when surface water mixes with landfill materials and creates liquid wastes that could migrate downward and impact groundwater.

Metals found at the sites at concentrations exceeding natural background values include antimony, arsenic, cadmium, lead, and molybdenum. These metals occur naturally in the soils native to areas both on and off Former MCAS El Toro property.

Petroleum hydrocarbons are chemical components of fuels. Compounds that make up petroleum hydro-carbons (e.g., VOCs, SVOCs) are evaluated for potential health effects. Petroleum hydrocarbons are managed outside the CERCLA program.

Preferred Alternative is the remedial alternative identified by the Navy in conjunction with the regulatory agencies that best satisfies the remedial action objectives, based on the evaluation of alternatives presented in the FS Report.

Proposed Plan is a document that reviews cleanup alternatives, summarizes recommended cleanup actions, explains the reasons for recommending them, and solicits comments from the community.

Radium (Ra) is a naturally occurring radioactive metallic element that occurs at low levels in virtually all rock, soil, water, plants, and animals. **Ra-226** (an isotope) was used in luminescent paints in dials, gauges, and equipment in aircraft at MCAS El Toro.

Record of Decision (ROD) is the public document that explains the cleanup alternative to be used at a specific site. The ROD is based on information and technical analysis generated during the remedial investigation/feasibility study and consideration of public comments received throughout the process and in response to the Proposed Plan.

Remedial action is a general term used to describe technologies used to contain, remove, or treat hazardous wastes to protect human health and the environment.

Remedial action objectives (RAOs) are goals established for the protection of human health and the environment.

Remedial Investigation (RI) identifies the nature and extent of potential contaminants at a site and assesses human health and ecological risks.

Semivolatile organic compounds (SVOCs) comprise a general category of organic compounds that evaporate at a slower rate than VOCs. Some SVOCs are known cancer causing compounds.

Volatile organic compounds (VOCs) make up a general category of organic (carbon-containing) compounds that evaporate easily at room temperature. VOCs are commonly used for degreasing machinery and parts, paint stripping, and other industrial operations. At former MCAS El Toro, historical activities include more than 40 years of aircraft maintenance using industrial solvents that are within the VOC category. Some VOCs are known cancer causing compounds.